Remarks

In the Office Action mailed November 5, 2003:

1. Claims 1-4, 6-7, 13 and 17-19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,408,360 (Chamberlain);
2. Claims 5, 12 and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chamberlain, in view of U.S. Patent No. 6,584,548 (Bourne);
3. Claims 8-11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chamberlain, in view of U.S. Patent No. 6,026,413 (Challenger);
4. Claim 14 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Chamberlain, in view of U.S. Patent No. 5,802,582 (Ekanadham);
5. Claim 16 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Chamberlain, in view of U.S. Patent No. 6,151,643 (Cheng);
6. Claims 20-24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chamberlain, in view of Ekanadham; and
7. Claim 25 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Chamberlain, in view of Ekanadham and Bourne.

I. Restriction

Applicants affirm the election of claims 1-25 (Group I). Claims 26-27 are withdrawn.

II. Chamberlain (U.S. Patent No. 6,408,360)

Chamberlain is directed to the automatic caching of web pages that have dynamic content (abstract; column 4, lines 21-24). Because it is directed to a different area, Chamberlain cannot anticipate or make obvious all aspects of Applicants' invention.

A. Chamberlain Does Not Automatically Invalidate Cached Data in Response to a Data Request Received at the Cache

In claimed embodiments of the present invention, a data item stored in a cache system is automatically invalidated in response to a change request received at the cache system. The Examiner recognizes that Chamberlain does not teach or suggest this (page 4, 2nd paragraph).

The Examiner has also recognized that Chamberlain does not automatically invalidate a set of data stored in a cache system without awaiting an invalidation message from a data server

(page 7, 3rd paragraph).

B. Chamberlain Requires a Cache to be Colocated with a Web Server

In Chamberlain, a cache and a web server are colocated (Fig. 4; column 6, line 65 to column 7, line14), in a system termed a "server caching system" (column 6, line 65). The tight coupling of Chamberlain's cached-response analyzer 306 (part of the web server) and cache 304 (Fig. 4) allows the validity analyzer 315 (part of analyzer 306) to "automatically invalidate[] pages based upon whether the candidate cached response is stale" (column 13, lines 4-7).

Embodiments of Applicants' invention are designed for scenarios in which a cache system or server is separate from a data server or web server. By requiring the cache and web server to be colocated, Chamberlain *teaches away* from embodiments of the present invention.

C. Chamberlain Requires an Explicit Invalidation Message from a Server to a Cache

In traditional caching systems that are separate from data or web servers that originate data to be cached, a cache requires an explicit invalidation message from the server before it will invalidate cached data. Chamberlain operates in the same manner, even though the cache and web server are tightly coupled (*see* Fig. 4). The validity analyzer 315 portion of the web server determines whether a candidate cached response is stale, and communicates with the cache to invalidate the corresponding page if necessary (column 13, lines 4-7).

In claimed embodiments of the present invention, however, a cache automatically invalidates cached data *on its own*, without an explicit message from a server.

D. When a Cached Set of Data is Changed via a Change Request, Chamberlain Invalidates the Cached Set Only *After* the Request is Processed

In one or more embodiments of the present invention (e.g., claim 13), a cached set of data is automatically invalidated at a cache system, when the cache system receives a change request for the set of data, without waiting for a data server to implement the change request. Thus, the cached set of data is invalidated before the set of data is changed.

Chamberlain specifies that "A cached response is normally replaced *after* it becomes known that one of the source parts has been modified at the source" (column 12, lines 39-41; emphasis added).

When a change request is received in Chamberlain, the web server parses the URL within the request and passes it to a cache control unit (column 7, lines 23-26). If the cache control unit finds a match between the parsed URL and a cached response, the cached response and any associated cache strategy indicators are identified to a cached response analyzer (column 8, lines 25-30). None of the identified cache strategy flags indicate that a cached response matching the change request should be invalidated *before* the change request is applied (column 10, lines 43-52). The closest flag – Document – teaches away from Applicants' invention by specifying that the cached data are not to be invalidated before the cached data change. As later stated, the Document flag ensures that "the cache entry would become invalid each time the page is edited" (column 13, lines 34-35), not before the page is edited.

III. Selected Claims

A. Claims 1-5

Claim 1 is directed to the automatic invalidation of data in a cache that is separate from a data server or web server that originates the cached data. As described above in section II.B, Chamberlain teaches away from this arrangement.

B. Claims 6-12, 18

Claims 6 and 18 recite the automatic invalidation of cached data, in a cache system, without awaiting an explicit invalidation message from a server. As described above in section II.C, Chamberlain requires an explicit communication from a web server to a cache to invalidate data in the cache.

Claims 10-11 recite the use of a rule for applying automatic invalidation, wherein the rule includes a first pattern for identifying a data request and a second pattern for identifying a set of data to be automatically invalidated in response to receipt of a request matching the first pattern. The cited teachings of Chamberlain are quite different from the limitations of claims 10-11, and Applicants traverse their rejection. The URL extracted from a request in Chamberlain is used to identify the desired *response*, not the request itself, as in the claimed embodiment of the invention. Further, claim 11 has been amended to make it clear that the second pattern is different from the first pattern. In Chamberlain, the two URLs cited by the Examiner will be for the same data.

C. Claims 13-17, 19

Claims 13 and 19 recite the automatic invalidation of cached data, in a cache system, in response to a receipt at the cache system of a change request for the data, without waiting for a server to apply the change. This is a different scenario from when a request to simply *view* a cached set of data is received. As described in Section II.D, Chamberlain requires a change request to be applied before it will invalidate the set of data being changed.

Claim 14 has been amended to make it clearer that the data server is still notified of a change request, but only *after* a cache system automatically invalidates the cached set of data. As specified by the Examiner, Ekanadham teaches one not to notify a server at all.

Claim 15 specifies that the set of data comprises a price of an item in an electronic auction. Applicants traverse the Examiner's statement that "Chamberlain teaches the claimed limitation (page 3, 1st line of 2nd paragraph). Further, Bourne discusses only a shopping cart. An electronic shipping cart relates to only a single user, and contains data applicable only to that single user. Data cached as part of an electronic auction are applicable and accessible to numerous users. Claim 15 has been amended to reflect the availability of the cached set of data to multiple users.

D. Claims 20-25

Claim 20 is directed to a cache system configured to automatically invalidate data from a separate server that originates the cached data. As described above in section II.B, Chamberlain teaches away from this arrangement. Further, and as observed by the Examiner, Ekanadham teaches one not to notify a server at all. In contrast, in the embodiment of the invention recited in claim 20, a data server is still notified of a change request, but only after the cache system automatically invalidates the cached set of data.

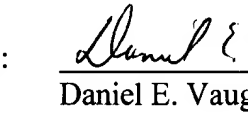
Claim 21 recites that the first cache comprises the invalidity module. Chamberlain teaches away from this arrangement. In Chamberlain, validity analyzer 315 is part of cached-response analyzer 306, which is part of the web server 100. If, however, the Examiner considers cached-response analyzer 306 to be part of a "cache server system" 100, then there is no separate data server coupled to the "cache server system" as recited in the amended claim 20, and

Chamberlain still teaches away from the embodiment of Applicants' invention recited in claim 20.

CONCLUSION

No new matter has been added with the preceding amendments. It is submitted that the application is in suitable condition for allowance. Such action is respectfully requested. If prosecution of this application may be facilitated through a telephone interview, the Examiner is invited to contact Applicant's attorney identified below.

Respectfully submitted,

Date: January 16, 2004 By:  42,199

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